WHAT IS CLAIMED IS:

1. A method for identifying a component substances in a sample using a luminescent biological agent comprising:

preparing a luminescent biological agent;

obtaining a sufficient volume of the sample to comprise a test sample;

separating the component substances of the test sample by applying the test sample to a separation phase matrix to provide isolated component substances of the test sample; and

exposing the isolated component substances to the luminescent biological agent to identify the isolated component substances of the sample.

2. The method of claim 1 wherein the luminescent biological agent is a luminescent bacteria, a luminescent fungi, a luminescent fish extract, a luminescent dinoflagellate a luminescent firefly extract, a luminescent anthrozoan, a luminescent earthworm extract, a luminescent collenterate extract, a luminescent crustacean.

3. The method of claim 1 wherein the luminescent biological agent is a luminescent bacteria.

4. The method of claim 3 where the luminescent bacteria comprises *Photobacterium leiognathi, Photobacterium phosphoreum, Vibrio fischeri* (ATCC Acc. 7744) or *Vibrio harveyi* (ATCC Acc. No. 33843).

5. The method of claim 1 wherein the luminescent biological agent is *Vibrio fischeri*, (ATCC Acc. No. 7744) or *Vibrio harveyi* (ATCC Acc. No. 33843)

6. The method of claim 1 wherein the luminescent biological agent is *Vibrio fischeri* (ATCC Acc. No. 7744).

7. The method of claim 1 wherein the test sample is a liquid sample, a solid sample or a gaseous sample.

8. The method of claim 7 wherein the separation phase matrix is chromatography paper and the test sample is a liquid sample.

9. The method of claim 8 wherein the isolated component substances of the test sample are exposed to a luminescent biological agent comprising a luminescent bacterium in a suspension suitable for spraying onto a chromatography paper.

10. The method of claim 9 wherein the isolated component substances of the test sample are identified by a zone of bacterial luminescent inhibition on the exposed chromatography paper.

11. The method of claim 1 wherein the test sample comprises components of garlic, DIAZANON®, LINDANE®, SEVIN®, ROUNDUP , mercury, lead, or cadmium.

12. The method of claim 9 wherein the volume of the luminescent biological agent comprises a suspension of 10^8-10^9 bacterial cells/ml.

13. A method for identifying a toxicant in a sample using a luminescent biological agent comprising:

preparing a luminescent biological agent which is inhibited by a substance which is toxic to an organism;

obtaining a sufficient volume of the sample suspected to contain a substance which is toxic to an organism to provide a test sample;

separating the component substances in the test sample to provide isolated component substances; and

exposing the isolated component substances to a toxicant-indicating concentration of the luminescent biological agent to form zones of luminescent inhibition; identifying a toxicant harmful to an organism as the component substances of the sample at the zones of luminescent inhibition.

14. A method for chemically identifying a toxicant in a sample harmful to an organism using a luminescent biological agent comprising:

preparing a luminescent biological agent which is inhibited by a substance which is toxic to an organism;

obtaining a sufficient volume of the sample suspected to contain a substance which is toxic to an animal to provide a test sample;

separating the component substances of the test sample through a separation phase matrix to provide a first group of isolated component substances;

exposing the first group of isolated component substances to a toxicant-indicating concentration of the luminescent biological agent to form zones of luminescent inhibition; identifying a toxicant harmful to an organism as the component substances of the sample at the zones of luminescent inhibition;

obtaining a second volume of the sample to form a second test sample;

separating the component substances of the second test sample through a separation phase matrix to provide a second group isolated component substances of the sample;

determining the chemical identity of the isolated component substances by analyzing the second group of isolated component substances which correspond to the zones of luminescent inhibition from the first group of isolated component substances to chemically identify the toxicant harmful to an organism in the sample.

15. The method of claim 13 wherein the toxicant is harmful to a virus.

16. The method of claim 14 wherein the organism is a plant, an animal or a microorganism.

17. The method of claim 14 wherein the animal is a human.

18. The method of claim 13 or 14 wherein the toxicant is selected from the group consisting of:

pesticides;
herbicides;
heavy metals; and
plant extracts.

19. The method of claim 13 or 14 wherein the toxicant is a pesticide DIAZANON®, LINDANE®, or SEVIN®.

20. The method of claim 13 or 14 wherein the toxicant is a herbicide ROUNDUP® or WEED-B-GONE®.

21. The method of claim 13 or 14 wherein the toxicant is a heavy metal mercury, lead or cadmium, or salt thereof.

22. The method of claim 13 or 14 wherein the luminescent biological agent is a luminescent bacteria.

23. The method of claim 13 or 14 wherein the luminescent biological agent is *Photobacterium phosphoreum, Vibrio fischeri,* (ATCC Acc. No. 7744) *Vibrio harveyi* (ATCC Acc. No. 33843) or *Photobacterium leiognathi*.

24. The method of claim 13 or 14 wherein the luminescent biological agent is *Vibrio fischeri* (ATCC Acc. No. 7744) or *Vibrio harveyi* (ATCC Acc. No. 33843).

25. The method of claim 13 or 14 wherein the luminescent biological agent is a luminescent bacteria and the toxicant detecting concentration of the bacteria is a suspension of about 10^8-10^9 bacteria cells/ml.

26. The method of claim 13 wherein the chemical identity of the isolated component substances of the test sample is achieved by analyzing the isolated component substances of the sample by HPLC, nuclear mass spectrometry, infrared spectroscopy, mass spectroscopy or electron capture detection.

27. The method of claim 13 or 14 wherein the test sample is separated into isolated component substances with a thin layer chromatography plate and wherein the isolated component substances are exposed to a suspension of the luminescent biological agent, and wherein the luminescent biological agent is a suspension of luminescent bacteria.

28. The method of claim 27 wherein the luminescent bacteria is sprayed onto the thin layer chromatography plate to provide zones of inhibition to identify the toxicant n the test sample.

29. The method of claim 27 wherein the luminescence of the bacterial agent is not inhibited by Volck oil spray or calcium ion.

30. The method of claim 27 wherein the inhibition of luminescence of the bacterial agent is greater for a toxicant DIAZANON® than for a toxicant LINDANE®.

31. The method of claim 27 wherein the inhibition of luminescence of the bacterial agent is greater for a toxicant DIAZANON® than for a toxicant LINDANE®.

32. The method of claim 27 wherein a solvent is used to separate component substances of the sample, and the solvent comprises ETOH, Hexane/THF or acetonitrile/water/aqueous ammonia.

33. A kit for the identification of a toxicant in a sample using a luminescent biological agent, said kit comprising:

a carrier means adapted to receive at least two container means and at least one separation phase matrix in close confinement therewith;

at least one separation phase matrix;

a first container means comprising a luminescent biological agent; and

a second container means comprising a diluent for the luminescent biological agent.

34. The kit of claim 33 wherein the separation phase matrix is Whatman chromatography paper or a thin layer chromatography plate.

35. the kit of claim 33 wherein the separation phase matrix is a thin layer chromatography plate.

36. The kit of claim 33 wherein the luminescent biological agent is a luminescent bacteria, *Photobacterium phosphoreum, Vibrio fischeri* (ATCC Acc. No. 7744), *Vibrio harveyi* (ATCC No. 33843) or *Photobacterium leiognathi*.

37. The kit of claim 33 wherein the luminescent biological agent is a luminescent bacteria, *Vibrio fischeri* (ATCC No.7744) or *Vibrio harveyi* (ATCC 33843)

38. The kit of claim 33 wherein the luminescent biological agent is a luminescent bacteria, *Vibrio fischeri* (ATCC Acc. No. 7744).

39. The kit of claim 33 wherein the luminescent biological agent is a bacterial agent in a lyophilized form.

40. The kit of claim 33 wherein the diluent is a saline solution comprising between 1%-3% NaCl wt/vol.

41. The kit of claim 33 wherein the diluent is an about 0.5 M NaCl saline solution.